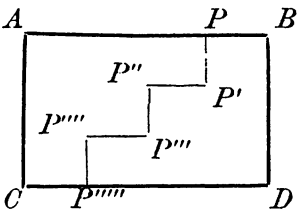
parts that the parts joined together may form a square?

**Solution by H. W. DRAUGHON, Clinton, Louisiana.**

Let $ABCD$ be the board, and let the broken line $PP'P''P'''P''''P'''''$ be the line of division.




We make $BP=P'P''=P'''P''''=P'''''C=4$ inches, and all parallel to $BP$; also we make, $PP'=P''P'''=P''''P'''''=3$ inches, and all parallel to $BD$. From the construction it is obvious that if $B$ be placed at $P'$ and $P''''$ at $C$ the resulting figure will be 1 foot square.

Solved in a similar manner by *G. B. M. Zerr, Robert J. Aley,* and *J. A. Calderhead.*

## PROBLEMS.

**12. Proposed by CHARLES E. MYERS, Canton, Ohio.**

A man made his will to this effect: that if only the daughter returned home his wife should have $\frac{2}{3}$ and the daughter $\frac{1}{3}$ of the estate; and if only the son returned, his wife should have $\frac{1}{3}$ and the son $\frac{2}{3}$. But the son and daughter both returned. How should the estate be divided?

**13. Proposed by J. R. BALDWIN, A. M., Professor of Mathematics in the Davenport Business College, Davenport, Iowa.**

A man borrowed \$5000 at a western bank giving his note for \$5000 due in 5 years without grace at 8% interest payable annually, and pays the banker a bonus of \$500 in cash for making the loan; what rate per cent. does he pay?

[Solutions to these problems should be received by April 1st.]

# ALGEBRA.

**Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.**

## PROBLEMS.

**9. Proposed by Professor G. B. M. ZERR, A. M., Principal of Schools, Staunton, Virginia.**

$$\left.\begin{aligned} x+y^2+z^2&=21\\ x^2+y^3+z&=45\\ x^3+y+z^2&=71 \end{aligned}\right\}.$$ Find $x$, $y$, and $z$.

**10. Proposed by J. K. ELLWOOD, A. M., Principal of Colfax School, Pittsburg, Pennsylvania.**

$$x^2+y^2+w^2+z^2=65\ldots.(1),$$
$$(x+z)^2+(y+w)^2=113\ldots.(2),$$
$$(y+z)^2+(x+y)^2=117\ldots.(3),$$
$$(x+y)^2+(z+w)^2=125\ldots.(4).$$

How many values has each of the four unknown quantities?

**11. Proposed by ISAAC L. BEVERAGE, Monterey, Virginia.**

Two men, $A$ and $B$, had a money-box, containing \$210, from which each drew